

Klamath River (Link River to Seiad Valley)
Master Sediment Budget

Reach Description					Input Summary												Landslides			Other Sources	Transport			Deficit/Surplus				
					Tributary/Watershed								Tons of slide (using bulk density of 1.485 tons/yds³)			Bed Material Load + Bedload Delivery (tons/ year)		Cummulative Load + Bedload Delivery by Reach (tons/ year)	Theoretical Average Annual Transport Capacity³ (tons/yr)	Potential Average Annual Deficit or Surplus by Cell (tons/yr)	Potential Average Annual Deficit or Surplus by Subreach (tons/yr)	Actual Average Annual Deficit or Surplus by Subreach (tons/yr)	Cumulative Deficit to Downstream Reach (tons/year)					
Reach	Subreach	Upstream Extent	Downstream Extent	River Mile	Input Source	Tributary Name	Relation to Mainstem Looking DS (river right (R), river left (L))	Watershed Area (acres)	Watershed Area (m²)	Watershed Area (km²)	Watershed Area (mi²)	Connectivity (h, m, l)	Connectivity Factor¹	Sediment Yield² (tons/mi2/yr)	Volume of Slide (yds³)	Streambanks and floodplain storage	Total Load Delivery (tons/ year)	Bed Material Load + Bedload Delivery (tons/ year)	Cummulative Load + Bedload Delivery by Reach (tons/ year)									
Link	Link	Link River Dam	Keno Dam	254.5-253	Reach Watershed Area⁴			70400	284889000	285	110.00	early Disconnect	0.01	191.7			211	169										
Reach Total										110							211	169		250000	-249831	-249831	-169	0	Material historically trapped in Lake Euwana			
Keno	Keno	Keno dam	J.B. Boyle res.	233.3-229	Reach Watershed Area⁵			50611	204810483	205	79	l	0.25	191.7			3790	3032	3032	900000	-896968							
Reach Total	JC Boyle res.	J.C. Boyle res.	J.C. Boyle dam	229-224.6				51788	209573517	210	81	l	0.25	191.7			3878	3102	6134	0	3102							
J.C. Boyle		J.C. Boyle dam	Copco dam		Tributaries Connected to the Mainstem⁸															900000	-893866	-6134	-6134	Deficit to J.C. Boyle Reach				
	JC Boyle bypass	J.C. Boyle dam	J.C. Boyle Peaking	224.7	unnamed trib a	R	85	344934	0	0.13	m	0.5	191.7				13	10	10	260000	-259990							
	JC Boyle bypass	J.C. Boyle dam	J.C. Boyle Peaking	224.6	unnamed trib b	R	2100	8498236	8	3.28	m	0.5	191.7				315	252	262		-259738							
	JC Boyle bypass	J.C. Boyle dam	J.C. Boyle Peaking	224.5	unnamed trib c	R	2707	10955700	11	4.23	m	0.5	191.7				405	324	586		-259414							
	JC Boyle bypass	J.C. Boyle dam	J.C. Boyle Peaking	224.3	unnamed trib d	L	4357	17631205	18	6.81	m	0.5	191.7				652	522	1108		-258892							
	JC Boyle bypass	J.C. Boyle dam	J.C. Boyle Peaking	222.3	unnamed trib e	L	1283	5190191	5	2.00	h	1	191.7				384	307	1415		-258585							
	JC Boyle bypass	J.C. Boyle dam	J.C. Boyle Peaking	222	unnamed trib f	L	328	1326147	1	0.51	h	1	191.7				98	79	1494		-258506							
	JC Boyle bypass	J.C. Boyle dam	J.C. Boyle Peaking	221.2	unnamed trib g	L	657	2659668	3	1.03	h	1	191.7				197	157	1651		-258349							
Subtotal																	2064	1651				-258349						
	JC Boyle bypass	J.C. Boyle dam	J.C. Boyle Peaking	222.6	Emergency spillway⁶ Erosion opposite of blowout⁶	P.H. Canal Spillway	R								68742	102082	2552	2042	2042	260000	-257958							
	JC Boyle bypass	J.C. Boyle dam	J.C. Boyle Peaking	222.6	Sidecast erosion	Sidecast erosion	L								10207	15157	379	303	2345		-257655							
	JC Boyle bypass	J.C. Boyle dam	J.C. Boyle Peaking	223.2	Emergency spillway⁶	Sidecast erosion Big Bend	L								1514	2249	56	45	2390		-257610							
	JC Boyle bypass	J.C. Boyle dam	J.C. Boyle Peaking	221.5	Big Bend Landslide 1	Big Bend Landslide 1	R								376	558	11	9	2399		-257601							
	JC Boyle bypass	J.C. Boyle dam	J.C. Boyle Peaking	221.4	Big Bend Landslide 2	Big Bend Landslide 2	R								1510	2242	49	39	2438		-257562							
Subtotal	JC Boyle bypass	J.C. Boyle dam	J.C. Boyle Peaking	221	Big Bend Landslide 3	Landslide 3	R								590	876	19	15	2453		-257547		-257547					
								82939.1705		123165							3066	2453										
J.C. Boyle USGS Gauge/Frain Ranch	J.C. Boyle Peaking	J.C. Boyle Gorge	220.3	Tributaries Connected to the Mainstem⁸	unnamed trib h	R	2078	8407920	8	3.25	m	0.5	191.7				311	249	249	140000	-139751							
J.C. Boyle USGS Gauge/Frain Ranch	J.C. Boyle Peaking	J.C. Boyle Gorge	219.8	unnamed trib i	R		569	2303956	2	0.89	h	1	191.7				171	136	385		-139615							
J.C. Boyle USGS Gauge/Frain Ranch	J.C. Boyle Peaking	J.C. Boyle Gorge	219	unnamed trib j	R		415	1678224	2	0.65	m	0.5	191.7				62	50	435		-139565							
J.C. Boyle USGS Gauge/Frain Ranch	J.C. Boyle Peaking	J.C. Boyle Gorge	218.6	hayden cr (unnamed trib k)	R		879	3555900	4	1.37	h	1	191.7				263	211	646		-139354							
J.C. Boyle USGS Gauge/Frain Ranch	J.C. Boyle Peaking	J.C. Boyle Gorge	218.5	unnamed trib l	L		127	512826	1	0.20	h	1	191.7				38	30	676		-139324							
J.C. Boyle USGS Gauge/Frain Ranch	J.C. Boyle Peaking	J.C. Boyle Gorge	218.4	unnamed trib m	R		186	754314	1	0.29	m	0.5	191.7				28	22	698		-139302							
J.C. Boyle USGS Gauge/Frain Ranch	J.C. Boyle Peaking	J.C. Boyle Gorge	218.3	unnamed trib n	R		19	78300	0	0.03	h	1	191.7				6	5	703		-139297							
J.C. Boyle USGS Gauge/Frain Ranch	J.C. Boyle Peaking	J.C. Boyle Gorge	218.2	unnamed trib o	L		1071	4335351	4	1.67	h	1	191.7				321	257	960		-139040							
J.C. Boyle USGS Gauge/Frain Ranch	J.C. Boyle Peaking	J.C. Boyle Gorge	217.5	unnamed trib p	L		204	825300	1	0.32	h	1	191.7				61	49	1008		-138992							
J.C. Boyle USGS Gauge/Frain Ranch	J.C. Boyle Peaking	J.C. Boyle Gorge	217.2	unnamed trib q	R		1236	5000554	5	1.93	m	0.5	191.7				185	148	1157		-138843							
J.C. Boyle USGS Gauge/Frain Ranch	J.C. Boyle Peaking	J.C. Boyle Gorge	217.1	unnamed trib r	R		345	1397700	1	0.54	h	1	191.7				103	83	1239		-138761							
J.C. Boyle USGS Gauge/Frain Ranch	J.C. Boyle Peaking	J.C. Boyle Gorge	216.9	unnamed trib s	L		78	317299	0	0.12	m	0.5	191.7				12	9	1249		-138751							
J.C. Boyle USGS Gauge/Frain Ranch	J.C. Boyle Peaking	J.C. Boyle Gorge	216.7	unnamed trib t	L		24	97800	0	0.04	h	1	191.7				7	6	1254		-138746							
J.C. Boyle USGS Gauge/Frain Ranch	J.C. Boyle Peaking	J.C. Boyle Gorge	216.6	unnamed trib u	L		6	25200	0	0.01	h	1	191.7				2	1	1256		-138744							
J.C. Boyle USGS Gauge/Frain Ranch	J.C. Boyle Peaking	J.C. Boyle Gorge	216.5	unnamed trib v	R		132	533712	1	0.21	m	0.5	191.7				20	16	1272		-138728							
J.C. Boyle USGS Gauge/Frain Ranch	J.C. Boyle Peaking	J.C. Boyle Gorge	216.3	unnamed trib topsy	L		5762	23319684	23	9.00	l	0.25	191.7				432	345	1617		-138383							
J.C. Boyle USGS Gauge/Frain Ranch	J.C. Boyle Peaking	J.C. Boyle Gorge	216	unnamed trib w	R		173	698888	1	0.27	h	1	191.7				52	41	1658		-138342							
J.C. Boyle USGS Gauge/Frain Ranch	J.C. Boyle Peaking	J.C. Boyle Gorge	215.4	bear flat cr	R		566	2289026	2	0.88	m	0.5	191.7				85	68	1726		-138274							
J.C. Boyle USGS Gauge/Frain Ranch	J.C. Boyle Peaking	J.C. Boyle Gorge	214.9	unnamed trib x	L		554	2241883	2	0.87	m	0.5	191.7				83	66	1793		-138207							
J.C. Boyle USGS Gauge/Frain Ranch	J.C. Boyle Peaking	J.C. Boyle Gorge	214.6	unnamed trib y	R		47	189900	0	0.07	m	0.5	191.7				7	6	1798		-138202							
Subtotal																	2248	1798				-138202						
J.C. Boyle Gorge	J.C. Boyle Gorge	J.C. Boyle Shovel Cr	214.4	Tributaries Connected to the Mainstem⁸	unnamed trib z	L	24	98100	0	0.04	m	0.5	191.7				4	3	3	210000	-209997							
J.C. Boyle Gorge	J.C. Boyle Gorge	J.C. Boyle Shovel Cr	213.8	rock cr	L		9948	40258165	40	15.54	m	0.5	191.7				1490	1192	1195		-208805							
J.C. Boyle Gorge	J.C. Boyle Gorge	J.C. Boyle Shovel Cr	213	unnamed trib aa	L		129	520561	1	0.20	h	1	191.7				39	31	1226		-208774							
J.C. Boyle Gorge	J.C. Boyle Gorge	J.C. Boyle Shovel Cr	212.5	unnamed trib bb	R		516	2087016	2	0.81	l	0.25	191.7				93	31	1257		-208743							
J.C. Boyle Gorge	J.C. Boyle Gorge	J.C. Boyle Shovel Cr	212.4	unnamed trib cc	R		620	2511074	3	0.97	m	0.5	191.7				20	16	1331		-208669							
J.C. Boyle Gorge	J.C. Boyle Gorge	J.C. Boyle Shovel Cr	211.9	unnamed trib dd	L		66	266119	0	0.10	h	1	191.7				20	16	1347		-208653							
J.C. Boyle Gorge	J.C. Boyle Gorge	J.C. Boyle Shovel Cr	211.8	unnamed trib ee	L		51	204487	0	0.08	h	1	191.7				15	12	1359		-208641							
J.C. Boyle Gorge	J.C. Boyle Gorge	J.C. Boyle Shovel Cr	210.6	unnamed trib ff	L		1842	7452938	7	2.88	h	1	191.7				552	441	1800		-208200							
J.C. Boyle Gorge	J.C. Boyle Gorge	J.C. Boyle Shovel Cr	210.2	unnamed trib ff2	L		229	925615	1	0.36	h	1	191.7				69	55	1855		-208145							
J.C. Boyle Gorge	J.C. Boyle Gorge	J.C. Boyle Shovel Cr	209.9	unnamed trib gg	R		2088	8448908	8	3.26	h	1	191.7				625	500	2355		-207645							
J.C. Boyle Gorge	J.C. Boyle Gorge	J.C. Boyle Shovel Cr	209.2	hayden cr	R		17786	71976105	72	27.79	l	0.25	191.7				1332	1065	3421		-2							

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Reach Description					Input Summary													Transport		Deficit/Surplus						
					Tributary/Watershed							Landslides		Other Sources	Cummulative			Theoretical Average Annual Transport Capacity ³ (tons/yr)	Potential Average Annual Deficit or Surplus by Cell (tons/yr)	Potential Average Annual Deficit or Surplus by Reach or Subreach (tons/yr)	Actual Average Annual Deficit or Surplus by Reach or Subreach (tons/yr)	Cumulative Deficit to Downstream Reach (tons/year)	Notes			
Reach	Subreach	Upstream Extent	Downstream Extent	River Mile	Input Source	Tributary Name	Relation to Mainstem Looking DS (river right (R), river left (L))	Watershed Area (acres)	Watershed Area (m ²)	Watershed Area (mi ²)	Connectivity (h, m, l)	Connectivity Factor ¹	Sediment Yield ² (tons/mi2/yr)	Volume of Slide (yds ³)	Tons of slide (using bulk density of 1.485 tons/yds ³)	Streambanks and floodplain storage	Total Load Delivery (tons/ year)							Bed Material Load + Bedload Delivery (tons/ year)	Load + Bedload Delivery by Reach (tons/ year)	
Subtotal	J.C. Boyle Shovel Creek	J.C. Boyle Shovel Cr	Copco res.	207.4	Tributaries Connected to the Mainstem ⁹	unnamed trib hh	R	450	1820012	2	0.70	l	0.25	191.7				34	27	27	200000	-199973				
	J.C. Boyle Shovel Creek	J.C. Boyle Shovel Cr	Copco res.	207.3		unnamed trib ii	L	1721	6965435	7	2.69	l	0.25	191.7				129	103	130		-199870				
	J.C. Boyle Shovel Creek	J.C. Boyle Shovel Cr	Copco res.	207.2		unnamed trib jj	L	466	1885500	2	0.73	l	0.25	191.7				35	28	158		-199842				
	J.C. Boyle Shovel Creek	J.C. Boyle Shovel Cr	Copco res.	206.1		shovel cr	L	32749	132531368	133	51.17	l	0.25	191.7				2452	1962	2120		-197880				
	J.C. Boyle Shovel Creek	J.C. Boyle Shovel Cr	Copco res.	205.8		eagle cr	R	4584	18549835	19	7.16	l	0.25	191.7				343	275	2394		-197606				
	J.C. Boyle Shovel Creek	J.C. Boyle Shovel Cr	Copco res.	205.7		unnamed trib ll	L	579	2342700	2	0.90	m	0.5	191.7				87	69	2464		-197536				
	J.C. Boyle Shovel Creek	J.C. Boyle Shovel Cr	Copco res.	205.3		unnamed trib mm	L	177	714898	1	0.28	l	0.25	191.7				13	11	2474		-197526				
	J.C. Boyle Shovel Creek	J.C. Boyle Shovel Cr	Copco res.	204.2		unnamed trib nn	L	969	3919867	4	1.51	l	0.25	191.7				73	58	2532		-197468				
	J.C. Boyle Shovel Creek	J.C. Boyle Shovel Cr	Copco res.	204.1		unnamed trib oo	L	661	2676820	3	1.03	l	0.25	191.7				50	40	2572		-197428				
																			3215	2572				-197428		
Subtotal	Copco res.	Copco res.	Copco dam	203.3	Tributaries Connected to the Mainstem ⁹	unnamed trib a	L	219	885084	1	0.34	m	0.5	191.7				33	26	26	0	26				
	Copco res.	Copco res.	Copco dam	203.2		long prairie cr	R	39242	158905725	159	61.31	l	0.25	191.7				2939	2351	2377		2377				
	Copco res.	Copco res.	Copco dam	203.1		unnamed trib b	R	55	221676	0	0.09	l	0.25	191.7				4	3	2380		2380				
	Copco res.	Copco res.	Copco dam	202.7		milk cr	L	596	2410176	2	0.93	m	0.5	191.7				89	71	2452		2452				
	Copco res.	Copco res.	Copco dam	202.4		snackenburg cr	L	1822	7373700	7	2.85	l	0.25	191.7				136	109	2561		2561				
	Copco res.	Copco res.	Copco dam	201.9		spannaus gulch	R	557	2253600	2	0.87	m	0.5	191.7				83	67	2628		2628				
	Copco res.	Copco res.	Copco dam	201.8		parks canyon	L	647	2618100	3	1.01	l	0.25	191.7				48	39	2666		2666				
	Copco res.	Copco res.	Copco dam	201.2		unnamed trib c	R	74	298482	0	0.12	m	0.5	191.7				11	9	2675		2675				
	Copco res.	Copco res.	Copco dam	201.2		unnamed trib d	R	345	1396715	1	0.54	m	0.5	191.7				52	41	2716		2716				
	Copco res.	Copco res.	Copco dam	200.9		unnamed trib e	R	97	391725	0	0.15	m	0.5	191.7				14	12	2728		2728				
	Copco res.	Copco res.	Copco dam	200.9		deer cr	L	4473	18100800	18	6.99	l	0.25	191.7				335	268	2996		2996				
	Copco res.	Copco res.	Copco dam	200.5		raymond gulch	R	1625	6574500	7	2.54	m	0.5	191.7				243	195	3191		3191				
	Copco res.	Copco res.	Copco dam	200.4		unnamed trib g	L	82	333334	0	0.13	l	0.25	191.7				6	5	3196		3196				
	Copco res.	Copco res.	Copco dam	199.9		unnamed trib h	R	70	282171	0	0.11	l	0.25	191.7				5	4	3200		3200				
	Copco res.	Copco res.	Copco dam	199.7		beaver cr	R	3563	14420700	14	5.57	l	0.25	191.7				267	213	3413		3413				
	Copco res.	Copco res.	Copco dam	199.6		unnamed trib i	L	108	436500	0	0.17	m	0.5	191.7				16	13	3426		3426				
	Copco res.	Copco res.	Copco dam	199.6		unnamed trib j	L	141	568865	1	0.22	l	0.25	191.7				11	8	3435		3435				
	Copco res.	Copco res.	Copco dam	199.6		unnamed trib k	R	182	735300	1	0.28	l	0.25	191.7				14	11	3445		3445				
	Copco res.	Copco res.	Copco dam	199.5		unnamed trib l	R	14	58163	0	0.02	m	0.5	191.7				2	2	3447		3447				
	Copco res.	Copco res.	Copco dam	199.4		unnamed trib m	R	92	373500	0	0.14	m	0.5	191.7				14	11	3458		3458				
	Copco res.	Copco res.	Copco dam	199.2		unnamed trib n	R	36	144000	0	0.06	h	1	191.7				11	9	3467		3467				
	Copco res.	Copco res.	Copco dam	199.1		unnamed trib o	R	719	2909542	3	1.12	l	0.25	191.7				54	43	3510		3510				
	Copco res.	Copco res.	Copco dam	198.9		unnamed trib p	L	196	793800	1	0.31	l	0.25	191.7				15	12	3522		3522				
																	4402	3522			3522					
Subreach Subtotals																										
J.C. Boyle Bypass		J.C. Boyle dam	J.C. Boyle Peaking		Tributaries Connected to the Mainstem ⁹												5131	4104	4104	260000	-255896					
J.C. Boyle USGS Gauge/Frain Ranch		J.C. Boyle Peaking	J.C. Boyle Gorge															2248	1798	5903	140000	-138202				
J.C. Boyle Gorge		Copco dam	J.C. Boyle Shovel Cr															4276	3421	9323	210000	-206579				
J.C. Boyle Shovel Creek		Copco dam	Copco res.															3215	2572	11895	200000	-197428				
Copco Reservoir		Copco res.	Copco dam															4402	3522	15417	0	3522				
Reach Total																	19271	15417		810000	-794583	-15417	-21551	Deficit to Copco Reach		
Copco	Copco bypass	Copco Dam	Iron Gate res.	197.5	Tributaries connected to the mainstem	unnamed trib a	L			0.22		m	0.5	166.1				18	15	15	480000	-479985				
	Iron Gate res.	Iron Gate res.	Iron Gate dam	194.2		Jenny Cr.	R	134329	543594111	544	209.89	l	1	22.8				4785	3828	3843		-476157				
	Iron Gate res.	Iron Gate res.	Iron Gate dam	192.3		Camp and Dutch Crks	R	12621	51072828	51	19.72	l	1	166.1				3275	2620	6463		-473537				
	Iron Gate res.	Iron Gate res.	Iron Gate dam	179.4		Scotch Cr.	R	11482	46462806	46	17.94	l	1	219.8				3943	3155	9618		-470382				
Subtotal																		12022	9618				-470382			
Reach Total	Iron Gate res.	Iron Gate res.	Iron Gate dam		Remaining watershed area of the Copco Project Reach ⁷	Iron Gate Tribs.	Both	17882	72361806	72	27.94	l	0.25	197.7				1381	1105	1105	0	1105				
											275.49						13403	10723	10723	480000	-469277	-10723	-32274	Deficit to DS Iron Gate Reach		
Iron Gate	Iron Gate Dam to Cottonwood Creek	Iron Gate dam	Cottonwood Cr	189.6	Tributaries connected to the mainstem ⁸	Bogas Cr.	L	34522	34522	140	53.94	NA	NA	191.7				10340	8272	8272	3000	5272				
	Iron Gate Dam to Cottonwood Creek	Iron Gate dam	Cottonwood Cr	185.0		Willow Cr.	L	37540	37540	152	58.66	NA	NA	191.7				11244	8995	17268		14268	14268	-18006	Deficit reduced by reach surplus	
Subtotal																		21585	17268				14268	14268	-18006	Deficit reduced by reach surplus
Cottonwood Creek to Scott River	Cottonwood Creek to Scott River	Cottonwood Cr	Scott River	182.1	Tributaries connected to the mainstem	Cottonwood Cr.	R	63542	63543	257	99.29	NA	NA	450				44678	44678	44678	19000	25678				
	Cottonwood Creek to Scott River	Cottonwood Cr	Scott River	176.7		Shasta R.	L	507422	507424	2053	792.85	NA	NA	450				356783	356783	401461		382461				
	Cottonwood Creek to Scott River	Cottonwood Cr	Scott River	169.7		Lime Gulch	R	23639	23639	96	36.94	NA	NA	450				16621	16621	418082		399082				
	Cottonwood Creek to Scott River	Cottonwood Cr	Scott River	167.0		Mainstream Tribs.	Both	163620	163621	662	255.66	NA	NA	450				115046	115046	533128		514128				
	Cottonwood Creek to Scott River	Cottonwood Cr	Scott River	164.4		Vesa Cr.	L	11331	11331	46	17.70	NA	NA	450				7967	7967	541095		522095				
	Cottonwood Creek to Scott River	Cottonwood Cr	Scott River	161.0		Beaver Cr.	R	69660	69660	282	108.84	NA	NA	450				48980	48980	590075		571075				

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Reach Description				
Reach	Subreach	Upstream Extent	Downstream Extent	River Mile
Subtotal	Cottonwood Creek to Scott River	Cottonwood Cr	Scott River	147.3
	Downstream of Scott River (includes Seiad Valley)	Scott River	Downstream of Seiad Valley	143.0
	Downstream of Scott River (includes Seiad Valley)	Scott River	Downstream of Seiad Valley	130.3
	Downstream of Scott River (includes Seiad Valley)	Scott River	Downstream of Seiad Valley	130.0
Subtotal				
Subreach Subtotals				
Iron Gate Dam to Cottonwood Creek		Iron Gate dam	Cottonwood Cr	
Cottonwood Creek to Scott River		Cottonwood Cr	Scott River	
Downstream of Scott River (includes Seiad Valley)		Scott River	Downstream of Seiad Valley	
Reach Total				

Input Summary													
Input Source	Tributary Name	Relation to Mainstem Looking DS (river right (R), river left (L))	Watershed Area (acres)	Watershed Area (m²)	Watershed Area (km²)	Watershed Area (mi²)	Connectivity (h, m, l)	Connectivity Factor¹	Sediment Yield² (tons/mi2/yr)				
	Horse Cr.	R	38952	38952	158	60.86	NA	NA	450				
	Scott R.	L	520609	520612	2107	813.46	NA	NA	450				
	Upper Grinder Cr.	L	27628	27628	112	43.17	NA	NA	450				
	Seiad Cr.	R	18491	18491	75	28.89	NA	NA	450				

Landslides			Other Sources	Cummulative		
Tons of slide (using bulk density of 1.485 tons/yds³)	Streambanks and floodplain storage	Total Load Delivery (tons/ year)	Bed Material Load + Bedload Delivery (tons/ year)	Bed Material Load + Bedload Delivery by Reach (tons/ year)		
		27388	27388	617463		
		617463	617463			
		366055	366055	366055	1000	
		19426	19426	385481		
		13002	13002	398483		
		398483	398483			
		21585	17268	17268	3000	
		617463	617463	634731		
		398483	398483	1033214	1000	
		1037531	1033214		23000	

Transport	
Theoretical Average Annual Transport Capacity³ (tons/yr)	

Note¹

Connectivity Factors			
Reach	Medium	Low	Nearly Disconnected
Link	0.5	0.25	0.01
JC Boyle	0.5	0.25	
Copco	0.5	0.25	

Note² Value from sed_yield.xls spreadsheet

Note³ Value from AveAnnualTransportCapcity spreadsheet tab

Note⁴ Only two tributaries were identified in this reach and sediment delivered to the mainstem was limited by depositional zones either near the mainstem or in upland meadows. The sediment inputs to this reach were estimated by multiplying a low connectivity rate by the watershed area. The watershed area for the Link reach was derived by taking the difference of the watershed area at the Link River Gauge and the Keno Gauge published by the USGS. The connectivity factor of 0.01 was based on professional judgment of the GSG and comparison with the measured tributary delta deposits. Historically, a large percentage of the bedload in the Klamath River would have been deposited in Lake Ewauna. Therefore, the sediment input value presented for the Link River Project Reach most likely overestimates the contribution of bedload sediment to the channel.

Note⁵ Although 17 tributaries were identified as being directly connected to the mainstem, a low (0.25) connectivity factor was applied the watershed area of the reach. The watershed area was determined by taking the difference between the watershed areas at the Keno gauge and the JC Boyle gauge. The connectivity factor was applied to the watershed area instead of the individual tributaries because the GIS algorithm used to determine watershed boundaries in other reaches was unable to accurately delineate the tributary watershed boundaries from the DEM. Many of the tributaries have flat meadows that limit sediment delivery to the mainstem. Subreach watershed areas and sediment yields were calculated as a percentage of the length of the reservoir by the total reach length. Most likely this method will overestimate the production of sediment from surfaces that are not connected to the mainstem by a channel.

Note⁶ Assuming slide started in the 1960s

Note⁷ Scotch, Camp, Dutch, and Jenny creeks and an unnamed "Tributary a" (UN Trib a) cover 90 percent of the watershed area of the Copco Project Reach. Sediment inputs were calculated by multiplying the watershed area of each creek by a connectivity factor derived from tributary delta surveys as described above. The sediment input from the remaining 10 percent of the watershed area was calculated by applying a low connectivity factor (0.25) to the watershed area. Applying the connectivity to watershed areas that are not directly connected to mainstem by a channel most likely overestimates the sediment input.

Note⁸ For the reach from Iron Gate Dam to Seiad Valley, two different tributary sediment yields were used to adjust for the change in geologic units that occurs near Cottonwood Creek. Sediment yield for Salmon River from de la Fuente and Hessig (1993) was applied to all tributaries downstream of Cottonwood Creek. This yield was determined by the GSG to underestimate the amount of sediment delivered to the Klamath River by other tributaries downstream. Therefore, this value was not reduced by 20% to account for the suspended load as occurred for the upstream sediment yields. For the reaches upstream of Cottonwood Creek, the yield derived from the tributary delta surveys was multiplied by the watershed area of each tributary to the Klamath River.

Note⁹ Sediment input to the J.C Boyle Reach was determined by multiplying the watershed area of each identified tributary by a connectivity factor. Connectivity factors were determined by weighting the sediment yield value from the tributary delta surveys at Scotch, Camp/ Dutch, Jenny, and Spencer Creeks. Scotch, Camp, and Dutch creeks had a yield of 197 tons/mi2/yr, which was considered a high sediment yield for the upper basin based on the extent of their delta deposits. Tributaries with high channel gradients and without depositional zones were considered to be well connected and were assigned a weight of 1.0 (i.e. their sediment yield was assumed to be the same as that measured for Scotch/Camp/Dutch creeks). Tributaries with shallower slopes and/or some depositional zones upstream were classified as medium in connection, and were assigned a weight of 0.5 (i.e. their sediment yields were assumed to be 0.5 of that measured for Scotch/Camp/Dutch creeks). Tributaries with shallow slopes and extensive depositional areas upstream of the mainstem were assigned a weight of 0.25 (i.e. their sediment yields were assumed to be 0.25 of that measured for Scotch/Camp/Dutch creeks).

Watersheds that appeared to be disconnected with respect to sediment transport by extensive depositional zones upstream of the confluence were classified as nearly disconnected and assigned a value of 0.01. Connectivity factors for this reach ranged from low (0.25) to high (1.0).

